IN THE CLAIMS:

1. (Currently amended) A method for megasonic cleaning , comprising :

a) providing a container having sidewalls on all sides of said container, wherein at least two of said sidewalls have an overflow, said container having a container inlet for flowing fluid into said container, said container inlet located below said overflows;

b) providing a first megasonic device with a first active surface for providing vibrational energy in said container;

c) providing a single substrate having a side that includes a ~~conductive~~ metallic film, and disposing said single substrate in said container within said sidewalls and below said ~~overflow~~ overflows for single-substrate processing, wherein said side is facing, substantially parallel to, and spaced a first spacing from said first active surface;

d) immersing said substrate in said fluid, flowing said fluid upwardly in said container from said container inlet, through said first spacing, and over said overflows; and

e) applying energy to said first megasonic device to provide vibration in said fluid and to clean said substrate wherein substantially all megasonic vibration provided in said fluid is from a megasonic device having an active surface that is substantially parallel to said side.

2. (previously presented) A method as recited in claim 1, further comprising providing relative motion between said substrate and said first megasonic device while performing said fluid-flowing and energy-applying.

3. (previously presented)A method as recited in claim 1, wherein said substrate has a substrate surface area and at least one from the group consisting of said first active surface and said first array active surface has an area at least equal to 40% of said substrate surface area.

4. (previously presented) A method as recited in claim 1, wherein said substrate has a maximum diameter and said first spacing is in a range from 1% to 80% of said maximum diameter.

5. (previously presented) A method as recited in claim 1, wherein said first spacing is in a range from 1 micrometer to 160 millimeters.

6. (previously presented) A method as recited in claim 1, wherein megasonic energy applied to said first megasonic device has a frequency of at least 400 kilohertz.

7. (previously presented) A method as recited in claim 1, wherein megasonic energy applied to said first megasonic device has a maximum power of at least 400 watts.

8. (previously presented) A method as recited in claim 7, wherein megasonic energy is applied to said first megasonic device with 20% to 100% of said maximum power.

9. (previously presented) A method as recited in claim 1, wherein said first megasonic device has an area and a total input power and wherein said input power divided by said area is at least four watts per square centimeter.

10. (previously presented) A method as recited in claim 1, wherein said flowing said fluid upwardly in said container comprises flowing said fluid through said first spacing at a fluid flow rate sufficient to carry particles away from said substrate before they redeposit on the substrate.

11. (previously presented) A method as recited in claim 1, wherein said container has a volume and wherein said flowing said fluid comprises flowing said fluid through said first spacing at a rate to replace said fluid in said volume in less than or equal to one minute.

12. (previously presented) A method as recited in claim 1, further comprising providing a second megasonic device with a second active surface in said tank, wherein said second active surface faces said first active surface , and is substantially parallel to and spaced a second spacing from said first active surface .

13. (previously presented) A method as recited in claim 12, further comprising completely immersing in said fluid said first megasonic device and said second megasonic device .

14. (previously presented) A method as recited in claim 12, further comprising disposing said substrate in said container between said first active surface and said second active surface .

15. (previously presented) A method as recited in claim 14, further comprising flowing said fluid through said second spacing.

16. (previously presented) A method as recited in claim 15, further comprising applying energy to said second megasonic device .

17. (previously presented) A method as recited in claim 12, wherein said first megasonic device and said second megasonic device provide energy to clean both sides and edges of said substrate.

18. (previously presented) A method as recited in claim 1, wherein said fluid comprises at least one from the group consisting of deonized water, dilute RCA cleaning solution and dilute citric acid solution.

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (previously presented) A method as recited in claim 1, further comprising completely immersing said first megasonic device in said fluid.

23. (currently amended) A method for megasonic cleaning a single substrate, comprising:

a) providing a container comprising a first megasonic device with a first active surface arranged in a horizontal plane , wherein said first magasonic device is held in a fixed position, and wherein said container has sidewalls on all sides, wherein at least two of said sidewalls have an overflow, wherein said container has a container inlet for flowing fluid into said container, wherein said container inlet is located below said overflows;

b) providing a single substrate having a side that includes a conductive film and disposing said single substrate in said container within said sidewalls, below said ~~overflow~~ overflows for single-substrate processing, wherein said side is facing, substantially parallel to, and spaced a spacing from said first active surface ;

c) immersing said single substrate in a fluid and flowing said fluid upwardly in said container from said container inlet, through said spacing, and over said overflows; and

d) applying energy to said first megasonic device wherein substantially all megasonic vibration provided in said fluid is from is from a megasonic device having an active surface that is substantially parallel to said side .

24-58. (Canceled)

59. (Currently Amended) A method for megasonic cleaning a single substrate, comprising :

(a) providing a container having sidewalls on all sides of said container, wherein at least two of said sidewalls have an overflow , said container having a container inlet for flowing fluid into said container, said container inlet located below said overflows;

(b) providing a first megasonic device with a first active surface , wherein said first active surface is arranged in a horizontal plane to provide megasonic vibration in said container;

(c) providing a single substrate having a side that includes a ~~conductive~~ metallic film and disposing said single substrate in said container ~~within said sidewalls, below said overflow~~, wherein said side is facing, substantially parallel to, and spaced a first spacing from said first active surface, wherein said single substrate is within said sidewalls and below said overflows for single-substrate processing;

(d) providing a fluid in said container, immersing said single substrate in said fluid, and flowing said fluid upwardly in said container from said container inlet, through said first spacing, and over said overflows; and

(e) applying energy to said first megasonic transducer, wherein substantially all megasonic vibration provided in said fluid is from a megasonic device having an active surface that is substantially parallel to said side .

60. (previously presented) A method as recited in claim 59, wherein said single substrate has a substrate surface area and said first active surface or said first array active surface has an area at least equal to 40% of said substrate surface area.

61. (previously presented) A method as recited in claim 59, wherein said single substrate has a substrate surface and wherein said first megasonic device is larger than said substrate surface.

62. (previously presented) A method as recited in claim 59, wherein said single substrate has a maximum diameter and said first spacing is in a range from 1% to 80% of said maximum diameter.

63. (previously presented) A method as recited in claim 59, wherein said first spacing is in a range from 1 micrometer to 160 millimeters.

64. (previously presented) A method as recited in claim 59, wherein megasonic energy applied to said first megasonic device has a frequency of at least 400 kilohertz.

65. (previously presented) A method as recited in claim 59, wherein megasonic energy applied to said first megasonic device has a maximum power of at least 400 watts.

66. (previously presented) A method as recited in claim 65, wherein said megasonic energy is applied to said first megasonic device with 20% to 100% of said maximum power.

67. (previously presented) A method as recited in claim 59, wherein said first megasonic device has an area and a total input power and wherein said input power divided by said transducer area is at least four watts per square centimeter.

68. (previously presented) A method as recited in claim 59, wherein said flowing said fluid comprises flowing said fluid through said first spacing at a fluid flow rate sufficient to carry particles away from said single substrate before they redeposit on said single substrate.

69. (previously presented) A method as recited in claim 59, wherein said container has a volume and wherein said flowing a fluid comprises flowing a fluid through said space between said single substrate and said transducer at a rate to replace saidfluid in said volume in less than or equal to one minute.

70. (previously presented) A method as recited in claim 59, further comprising providing a second megasonic device with a second active surface in said tank, wherein said second active surface faces said first active surface and is substantially parallel to and spaced a second spacing from said first active surface .

71. (previously presented) A method as recited in claim 70, further comprising completely immersing in said fluid said first megasonic device and said second megasonic device .

72. (previously presented) A method as recited in claim 70, further comprising disposing said single substrate in said container between said first active surface and and said second active surface .

73. (previously presented) A method as recited in claim 72, further comprising flowing said fluid through said second spacing.

74. (previously presented) A method as recited in claim 73, further comprising applying energy to said second megasonic device .

75. (previously presented) A method as recited in claim 70, wherein said first megasonic device and said second megasonic device provide energy to clean both sides and edges of said single substrate.

76. (previously presented) A method as recited in claim 59, wherein said fluid comprises at least one from the group consisting of deonized water, dilute RCA cleaning solution and dilute citric acid solution.

77. (previously presented) A method as recited in claim 1, wherein at least one from the group consisting of said first megasonic device is larger than said substrate.

78. (previously presented) A method as recited in claim 23, wherein said first megasonic device is larger than said single substrate.

79. Cancel

80. (previously presented) A method as recited in claim 1, wherein said first active surface is arranged in a horizontal plane.

81. (previously presented) A method as recited in claim 1, wherein said first active surface is arranged in a vertical plane.

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99. (previously presented) A method as recited in claim 2, wherein said providing relative motion between said substrate and said first megasonic device is in a direction substantially parallel to said substrate.

100. (previously presented) A method as recited in claim 1, wherein said conductive film includes a metallic film.

101. (previously presented) A method as recited in claim 23, wherein said conductive film includes a metallic film.

102. (previously presented) A method as recited in claim 59, wherein said conductive film includes a metallic film.

103. (previously presented) A method as recited in claim 1, wherein said first megasonic device includes a megasonic transducer.

104. (previously presented) A method as recited in claim 1, wherein said first megasonic device includes an array of megasonic transducers.

105. (previously presented) A method as recited in claim 23, wherein said first megasonic device includes a megasonic transducer.

106. (previously presented) A method as recited in claim 23, wherein said first megasonic device includes an array of megasonic transducers.

107. (previously presented) A method as recited in claim 59, wherein said first megasonic device includes a megasonic transducer.

108. (previously presented) A method as recited in claim 59, wherein said first megasonic device includes an array of megasonic transducers.

109. (previously presented) A method as recited in claim 1, wherein said fluid comprises one from the group consisting of a basic chemistry and an acidic

chemistry.

110. (previously presented) A method as recited in claim 23, wherein said fluid comprises at least one from the group consisting deonized water, dilute RCA cleaning solution and dilute citric acid solution.

111. (previously presented) A method as recited in claim 23, wherein said fluid comprises one from the group consisting of a basic chemistry and an acidic chemistry.

112. (previously presented) A method as recited in claim 59, wherein said fluid comprises one from the group consisting of a basic chemistry and an acidic chemistry.